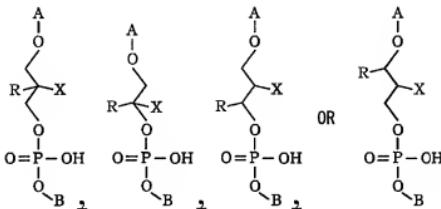


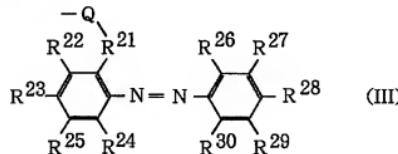
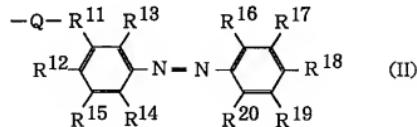
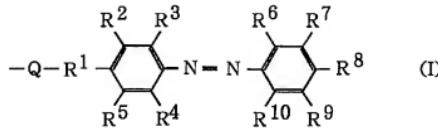
AMENDMENTS TO THE CLAIMS

1. (Cancelled)

2. (Currently Amended) The A DNA enzyme according to Claim 1, represented by the following Formula:



[[()]]in the Formulae, A represents a catalytically active loop end, B represents a nucleotide or an oligonucleotide, X represents any one the organic group selected from the group consisting of azobenzene, azobenzene derivatives, spiropyran, and stilbene, and derivatives thereof, and R represents a hydrogen atom or an alkyl group having the a carbon number of 1 to 4[[()]], wherein the azobenzene derivative is represented by the following Formulae (I), (II) or (III):



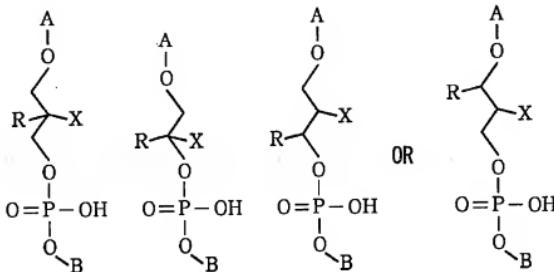
in the Formulae (I)-(III), R¹, R¹¹, and R²¹ independently represent (a) a direct bond, (b) an unsubstituted or a halogen atom-, hydroxyl-, amino-, nitro-, or carboxyl-substituted alkylene group having a carbon number of 1 to 20, or (c) an unsubstituted or a halogen atom-, hydroxyl-, amino-, nitro-, or carboxyl-substituted alkenylene group having a carbon number of 2 to 20; Q represents (a) a direct bond, (b) an oxygen atom, (c) a -(CH₂)_n-NH-CO- group, or (d) a -(CH₂)_n-CO-NH- group, wherein n = 1 to 5; and R² to R¹⁰, R¹² to R²⁰, and R²² to R³⁰ independently represent (a) an unsubstituted or a halogen atom-, hydroxyl-, amino-, nitro-, or carboxyl-substituted alkyl group or alkoxy group having a carbon number of 1 to 20, (b) an unsubstituted or a halogen atom-, hydroxyl-, amino-, nitro-, or carboxyl-substituted alkenyl group or alkynyl group having a carbon number of 2 to 20, (c) a hydroxyl group, (d) a halogen atom, (e) an amino group, (f) a nitro group, or (g) a carboxyl group; and at least one of R² to R¹⁰, at least one of R¹² to R²⁰, and at least one of R²² to R³⁰ is substituted.

3. (Cancelled)

4. (Withdrawn) A method for controlling the activity of a DNA enzyme, characterized by comprising the step of applying light at specific wavelengths to the DNA enzyme including a nucleotide residue, to which any one organic group selected from the group consisting of azobenzene, spiropyran, stilbene, and derivatives thereof is bonded, and thereby, effecting reversible structural isomerization between a planar structure and a nonplanar structure of the organic group, so as to control the RNA cleavage activity of the DNA enzyme.

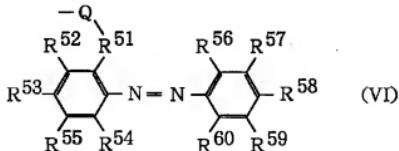
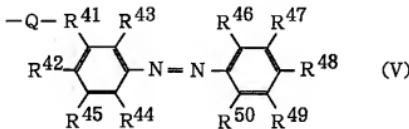
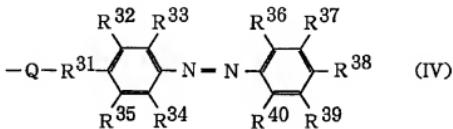
5. (Withdrawn) The method for controlling the activity of a DNA enzyme according to Claim 4, wherein the introduction position of the nucleotide residue is a 3'-side end of a catalytically active loop.

6. (Withdrawn) The method for controlling the activity of a DNA enzyme according to Claim 5, wherein the DNA enzyme is represented by the following Formula:



(in Formulae, A represents a catalytically active loop end, B represents nucleotide or oligonucleotide, X represents any one organic group selected from the group consisting of azobenzene, spiropyran, stilbene, and derivatives thereof, and R represents a hydrogen atom or an alkyl group having the carbon number of 1 to 4).

7. (Withdrawn) The method for controlling the activity of a DNA enzyme according to Claim 6, wherein X is represented by the following Formula (IV), (V), or (VI):



(in Formulae, R³¹, R⁴¹, and R⁵¹ represent independently a direct bond; an unsubstituted or a halogen atom-, hydroxyl-, amino-, nitro-, or carboxyl-substituted alkylene group having the carbon number of 1 to 20; or an unsubstituted or a halogen atom-, hydroxyl-, amino-, nitro-, or carboxyl-substituted alkenylene group having the carbon number of 2 to 20, Q represents a direct bond, an oxygen atom, a -(CH₂)_n-NH-CO- group, or a -(CH₂)_n-CO-NH- group, where n = 1 to 5, R³² to R³⁷, R³⁹, R⁴⁰, R⁴² to R⁴⁷, R⁴⁹, R⁵⁰, R⁵² to R⁵⁷, R⁵⁹, and R⁶⁰ represent independently an unsubstituted or a halogen atom-, hydroxyl-, amino-, nitro-, or carboxyl-substituted alkyl group or alkoxy group having the carbon number of 1 to 20; an unsubstituted or a halogen atom-, hydroxyl-, amino-, nitro-, or carboxyl-substituted alkenyl group or alkynyl group having the carbon number of 2 to 20; a hydroxyl group; a halogen atom; an amino group; a nitro group; or a

carboxyl group, and R³⁸, R⁴⁸, and R⁵⁸ represent independently an unsubstituted or a halogen atom-, hydroxyl-, amino-, nitro-, or carboxyl-substituted alkyl group or alkoxy group having the carbon number of 1 to 20; an unsubstituted or a halogen atom-, hydroxyl-, amino-, nitro-, or carboxyl-substituted alkenyl group or alkynyl group having the carbon number of 2 to 20; a hydroxyl group; or a halogen atom).

8. (New) The DNA enzyme according to Claim 2, wherein Q is a -(CH₂)_n-NH-CO-group and R¹, R¹¹, and R²¹ are all direct bonds.

9. (New) The DNA enzyme according to Claim 2, wherein Q is a -(CH₂)_n-NH-CO-group, R⁸, R¹⁸, and R²⁸ are all amino groups, and R¹, R¹¹, and R²¹ are all direct bonds.